

in that part of France must have been nearly the same as those which exist now-a-days in certain tropical regions.—*Comptes Rendus*, March 14, 1870, p. 557.

*On the Pancreas in Osseous Fishes, and on the Nature of the Vessels discovered by Weber.* By S. LEGOUIS.

The author indicates, in a few words, the history of our knowledge of supposed pancreatic structures in the osseous fishes, and shows that five years ago the pancreas had been recognized only in two species (*Silurus glanis* and *Esox lucius*), and supposed pancreatic granulations in about a dozen more. Weber noticed two systems of canals of very different appearance passing from the liver to the intestine in the carp, and imagined that the liver might furnish bile to one set and pancreatic juice to the other. This interpretation was rejected by C. Bernard, who, however, met with the double set of canals in other species.

The author commenced his researches in 1865; and he has examined 43 species, representing the principal families. He finds that Weber's canals exist in all the osseous fishes; they are invisible, like the middle lymphatics, in most species, but sometimes pearly (carp, turbot). They constantly open into the duodenum, near the gall-duct, and often by an ampulla. In some species with a convoluted intestine they acquire a very elegant arborescent form (barbel, grey mullet). Scarcely an intestinal sinus but receives some branchlet of this system; it passes among the pyloric appendages (dory, mackerel), associates its principal trunks with the *ductus choledochus*, the splenic and mesenteric veins, and the portal vein, which it follows into the mass of the liver.

All the osseous fishes possess a pancreas, however its elements may be dispersed, and the Plagiostomi have one similar in all respects to that of other Vertebrata. Among osseous fishes the author distinguishes the following three forms:—

1. *Disseminated pancreas*.—Glandular globules dispersed through the laminae of the peritoneum (barbel, lumpfish, sardine, sand-smelt, loach, &c.).

2. *Diffused pancreas*.—In this the pancreas is lamellar, and resembles that of the rabbit, but forms a glandular web of very much greater tenuity. It is diffused throughout the interstices between the viscera, sometimes to such a degree (*Caranx*) that these are immersed in a pancreatic mass. The author refers to the following species among others as exhibiting this form of pancreas in various modifications:—conger, gurnard, *Sparus*, and stickleback.

3. *Massive pancreas*, resembling the organ in the higher Vertebrata (*Silurus*, pike, eel).

The three forms are associated, at least two and two. Weber's canals are the excretory ducts of the first two forms; and every one of their branches terminates in a gland. In many species the pancreatic and hepatic glands are still in progress when the fish is adult; this explains the apparent penetration of the pancreas into the liver.—*Comptes Rendus*, May 16, 1870, p. 1098.